



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/824,904

04/14/2004

Michael C. Lewis

17459US03

7595

23446 7590 01/23/2009
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER

TAN, ALVIN H

ART UNIT

PAPER NUMBER

2173

MAIL DATE

DELIVERY MODE

01/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/824,904	Applicant(s) LEWIS ET AL.	
	Examiner ALVIN H. TAN	Art Unit 2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 13, 25 and 32-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 13, 25 and 32-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/24/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. Claims 1, 13, 25, and 32-46 have been examined and rejected. This Office action is responsive to the amendment filed on 11/10/08, which has been entered in the above identified application.

Claim Objections

2. The correction(s) to claims 25 and 38-40 have been approved, and the objections to the claims are withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 13, 25, and 32-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (U.S. Patent No. 6,424,345), herein after Smith, and Arenburg et al (U.S. Patent No. 6,191,800 B1), herein after Arenburg.

Claims 1, 32, 33 (Method)

Claims 13, 35, 36 (Computer Readable Medium)

Claims 25, 38, 39 (System)

4-1. Regarding claims 1, 13, and 25, Smith teaches the claim for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, comprising storing the plurality of primitives in a plurality of bins and rendering the plurality of primitives by rendering each of the plurality of bins bin by bin, by disclosing *[figure 3; column 4, lines 61-67; column 5, lines 1-22]*.

Smith does not expressly teach adjusting the capacity of one or more of the bins based on the ability of the system to process the primitives of a given bin in parallel. Arenburg teaches dividing a viewable area of a display device into a plurality of tiles and adjusting sizes of tiles in order to better manage graphic workloads *[column 2, lines 55-63; column 3, lines 12-30]*. A multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster *[column 7, lines 19-23]*. Since Smith teaches rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

4-2. Regarding claims 32, 35, and 38, Smith and Arenburg teach the claim with respect to claims 1, 13, and 25 respectively, wherein adjusting the capacity of one or more of the bins during operation of the system comprises dynamically adjusting the

Art Unit: 2173

capacity of one or more of the bins during operation of the system, by disclosing dynamically adjusting the sizes *[column 4, lines 39-51]*.

4-3. Regarding claims 33, 36, and 39, Smith and Arenburg teach the claim with respect to claims 1, 13, and 25 respectively, wherein adjusting the capacity of one or more of the bins during operation of the system comprises adjusting the capacity of one or more of the bins based on the number of primitives in a given bin and based further on the number of processors available to process the primitives, by disclosing adjusting the size based on time required to render a portion of the image *[column 4, line 61 to column 5, line 1]*. The time required to render a portion of the image is dependent upon the number of primitives and the processors available to process the primitives.

Claims 34, 43, 44 (Method)

Claims 37, 45, 46 (Computer Readable Medium)

Claims 40-42 (System)

4-4. Regarding claims 34, 37, and 40, Smith teaches the claim for providing a graphical image on a display of a system, the graphical image being provided from data describing a plurality of primitives, comprising storing the plurality of primitives in a plurality of bins and rendering the plurality of primitives by rendering each of the plurality of bins bin by bin, by disclosing *[figure 3; column 4, lines 61-67; column 5, lines 1-22]*.

Smith does not expressly teach combining bins or portions of bins during operation of the system. Arenburg teaches dividing a viewable area of a display device

Art Unit: 2173

into a plurality of tiles and adjusting sizes of tiles in order to better manage graphic workloads [*column 2, lines 55-63; column 3, lines 12-30*]. [*Figures 3A*] shows three tiles and [*figure 3B*] shows the three tiles after their sizes have been adjusted. Since Smith teaches rendering a graphical image on a display of a system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the sizes of tiles to balance graphics workload, as taught by Arenburg. This would allow for better management of graphic workloads when rendering graphics.

4-5. Regarding claims 43, 45, and 41, Smith and Arenburg teach the claim wherein combining bins or portions of bins during operation of the system comprises combining bins or portions of bins based on the ability of the system to process the primitives of a given bin in parallel, by disclosing adjusting the size based on time required to render a portion of the image [*Arenburg, column 4, line 61 to column 5, line 1*]. A multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster [*Arenburg, column 7, lines 19-23*].

4-6. Regarding claims 44, 46, and 42, Smith and Arenburg teach the claim wherein combining bins or portions of bins during operation of the system comprises combining bins or portions of bins based on the number of primitives in a given bin and based further on the number of processors available to process the primitives, by disclosing adjusting the size based on time required to render a portion of the image [*Arenburg, column 4, line 61 to column 5, line 1*]. The time required to render a portion of the image

Art Unit: 2173

is dependent upon the number of primitives and the processors available to process the primitives.

Response to Arguments

5. The Examiner acknowledges the Applicant's amendments to claims 1, 13, 25, 33, 34, 36, 37, 39, and 40 and the addition of claims 41-46. Regarding independent claims 1, 13, and 25, the Applicant alleges that Smith et al (U.S. Patent No. 6,424,345) and Arenburg et al (U.S. Patent No. 6,191,800 B1), as described in the previous Office action, do not explicitly teach that the capacity of one or more of the bins is adjusted based on the ability of the system to process the primitives of a given bin in parallel. Contrary to Applicant's arguments, Smith and Arenburg disclose a multi-processor system may be used where concurrent rendering processes can be distributed among several processes in a cluster *[Arenburg, column 7, lines 19-23]*. Since the size of the bin is based on the time required to render a portion of the image *[Arenburg, column 4, line 61 to column 5, line 1]* and the time required to render a portion of the image is affected by the concurrent rendering processes, the size of the bin is based on the ability to process the primitives of a given bin in parallel.

Regarding independent claims 34, 37, and 40, Applicant alleges that Smith and Arenburg do not explicitly teach combining bins. Examiner notes that the claim language recites "combining bins or portions of bins". Contrary to Applicant's arguments, *[Arenburg, figure 3A]* shows three tiles and *[Arenburg, figure 3B]* shows that

the three tiles have been adjusted such that the leftmost and rightmost tiles have been combined with a portion of the center tile to create the new sizes.

Applicant states that dependent claims 32, 33, 35, 36, 38, 39, and 41-46 recite all the limitations of the independent claims, and thus, are allowable in view of the remarks set forth regarding independent claims 1, 13, 25, 34, 37, and 40. However, as discussed above, Smith and Arenburg are considered to teach claims 1, 13, 25, 34, 37, and 40 and consequently, claims 32, 33, 35, 36, 38, 39, and 41-46 are rejected.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2173

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALVIN H. TAN whose telephone number is (571)272-8595. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kieu Vu can be reached on 571-272-4057. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AHT
Assistant Examiner
Art Unit 2173

/Tadesse Hailu/
Primary Examiner, Art Unit 2173